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Chest Infections

TOPIC: Chest Infections

TYPE: Medical Student/Resident Case Reports

BULLOUS LUNG DISEASE FOLLOWING COVID-19 INFECTION

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INTRODUCTION: The ongoing coronavirus disease 2019 (COVID-19) pandemic has resulted in persistent pulmonary complications among survivors. As our understanding of post infectious pulmonary phenomena continues to evolve, it is clear there are multiple difference manifestations of pulmonary lung disease associated with severe acute respiratory syndrome coronavirus 2 (SARS CoV-2). Here we describe a case of bullous lung disease as a complication of COVID-19.

CASE PRESENTATION: A 61-year-old gentleman without significant past medical history presented with worsening shortness of breath of two days duration. Three months prior to presentation he was hospitalized for acute hypoxemic respiratory failure due to COVID-19 requiring Bi-level Positive Airway Pressure which was complicated by pneumomediastinum and right-sided pneumothorax that required chemical pleurodesis. On this presentation, he was hypoxemic and CT scan of the chest showed extensive bullous lung disease (BLD) throughout the right lung with mediastinal shift, not noted on prior imaging. He denied family history of lung disease or connective tissue disease. Prior to COVID-19 infection he was an avid marathon-runner, worked as a civil engineer with no occupational exposures, and never smoked tobacco products, vaped electronic cigarettes, or used illicit drugs. Admission vitals were unremarkable and physical exam revealed decreased breath sounds on the right side. His laboratory data including repeat SARS CoV-2 nasal polymerase chain reaction, alpha-1 antitrypsin and angiotensin-converting enzyme levels were unrevealing. Cardiothoracic surgery was consulted and he successfully underwent Video-Assisted Thoracoscopic surgery with wedge resection of the right lower lobe and chemical pleurodesis. Pathology ruled out a loculated pneumothorax and confirmed the presence of bullae localized within the lung parenchyma.

DISCUSSION: Bullous lung disease has been described secondary to cocaine, cigarette or marijuana smoking as well as Emphysema, Sarcoidosis, alpha1-antitrypsin deficiency, Marfan's syndrome, Ehlers-Danlos syndrome and inhaled fiberglass exposure. However, our patient did not have any family history of lung disease, occupational exposures or smoking history, and physical exam was not suggestive of either Marfan's or Ehlers-Danlos syndrome. Since there was no underlying lung disease prior to hospitalization, common etiologies of bullous lung disease were ruled out, and given temporal association with COVID-19 infection, we hypothesized that his lung disease was related to his infection. Although the relationship between bullous lung disease and COVID-19 has yet-to-be defined, case reports have described this emerging association.

CONCLUSIONS: Further investigation in the development of chronic lung disease following COVID-19 infection is sorely needed given the growing population of COVID-19 survivors.

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